

CLAIMS

What is claimed is:

1. A communications system comprising:

a central node;

at least one remote node adapted to receive information transmitted from the central node over a broadcast link; and

a communications link adapted to convey information from the remote node to the central node, the central node being adapted to dynamically tailor a remote node transmit power control and a bandwidth as requested by the remote node for conveying information over the communications link.

2. The system of claim 1 wherein the broadcast link comprises a communications channel adapted to transfer link maintenance information from the central node to each of the remote nodes.

3. The system of claim 2 wherein the link maintenance information is data used to maintain and manage the broadcast link and the communications link.

4. The system of claim 1 wherein the broadcast link is a continuous transmission of link maintenance information from the central node to the remote node.

5. The system of claim 1 wherein the communications link comprises a time division multiple access link using a multi-phase shift key waveform.

6. The system of claim 1 wherein the communication link comprises:

a first channel adapted to achieve a high signal-to-noise ratio; and

at least one remaining channel adapted to convey high speed user data originating at the remote node and terminating at the central node; and

wherein the first channel is adapted to operate at a data rate lower than a data rate of the remaining channel.

7. The system of claim 6 wherein the remaining channel includes only a second channel, the first channel and the second channel being in an orthogonal relationship.

8. The system of claim 6 wherein the first channel is adapted to provide slot timing, communications link synchronization and slot management functions.

9. The system of claim 6 wherein the first channel is adapted to provide all management functions for the communications link and the second channel is adapted to meet remote node bandwidth needs.

10. The system of claim 1 wherein the communications channel comprises a first channel and a second channel in an orthogonal relationship, wherein the first channel is a high signal-to-noise channel and the second channel is a wideband channel.

11. The system of claim 10 wherein the first channel is adapted to adjust the wideband channel performance on a slot by slot basis.

12. A communications system comprising:

- a central node adapted to transmit information over a broadcast link to at least one remote node; and

- a time division multiple access link using a multi-phase shift key waveform to convey information from the remote node to the central node, the link including a first channel to provide management functions for the broadcast link and time division multiple access link, and a second channel adapted to operate a high data rates and to meet bandwidth needs of individual remote nodes.

13. The system of claim 12 wherein the first channel is an embedded high signal-to-noise ratio tracking channel.

14. The system of claim 12 wherein the second channel is adapted to provide a dedicated conduit for transmitting user data from the remote node to the central node.

15. The system of claim 12 wherein the second channel is a wideband channel adapted to be rate adjusted for an individual remote node to accommodate a required data bandwidth for the remote node.

16. The system of claim 15 wherein the time division multiple access link can adjust a performance of the wideband channel on a slot by slot basis.

17. A method of dynamically altering transmit power control and bandwidth transmission requirements of a remote node in a communications network including a plurality of remote nodes, the method comprising the steps of:

acquiring link management information transmitted from a central node to the remote node over a broadcast link;

requesting a new remote node transmit power control and a new transmit data bandwidth from the central node by sending a request from the remote node to the central node over a time division multiple access

communications link using a multi-phase shift key waveform, wherein a high signal-to-noise ratio channel in the link is used to provide the remote node transmit power control and a wideband channel in each slot of the link is adapted to be rate adjusted to meet the transmit data bandwidth needs of the remote node on demand; and

implementing the change one remote node slot time subsequent to the request.

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19. The method of claim 18 wherein the step of implementing the change further comprises the step of dynamically configuring the wideband channel to accommodate the new transmit data bandwidth on a slot by slot basis.

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20. The method of claim 18 further comprising the step of dynamically assigning one or more slots to a new remote node entering the network.